

WHAT IS CLAIMED IS:

1. An image processing apparatus comprising:

means for inputting data described in a color page  
description language;

5 means for analyzing at least luminance information  
from the data input to said input means;

means for receiving the luminance information  
analyzed by said analysis means, converting the  
luminance information into density information, and  
10 outputting the density information;

means for determining if the density information  
is offset to a specific color;

means for, when it is determined that the density  
information is offset to a specific color, gradating the  
15 specific color; and

means for, when the density information is offset  
to the specific color, reducing a gradation level of  
colors other than the specific color.

2. The apparatus according to claim 1, wherein the

20 luminance information is color information of red (R),  
green (G), and blue (B) components, and the density  
information is color information of yellow (Y), magenta  
(M), cyan (C), and black (K) components, and

when said converting means converts the luminance  
25 information into density information in which one of  
yellow (Y), magenta (M), cyan (C), and black (K) is  
stronger than the remaining three colors, and the

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remaining colors are converted into density information of "0" or a level close to "0", said determining means determines that the density information is offset to a specific color.

5 3. The apparatus according to claim 1, further comprising:

means for printing out the density information.

4. The apparatus according to claim 3, wherein said printing means comprises means for generating latent image, and

10 said reducing means executes the tone output level reduction process for making the generating means generate a latent image with a light amount of invisible level or with a light amount not more than a non-developing level of said printing means.

15 5. The apparatus according to claim 4, wherein said generating means generates a latent image using dots of uniform and lowest level (nonzero) in correspondence with colors reduced the gradation level.

20 6. The apparatus according to claim 3, further comprising:

means for determining an object contained in the data, and

25 wherein said reducing means reduces the gradation level on the basis of the determination result of said determining means.

7. The apparatus according to claim 6, wherein said object determination means determines if the object is one of image, text, and graphics objects,

    said reducing means reduces the gradation level

5 for the text and graphics objects, and

    said gradating means executes a simple dither process for the image object.

8. An information processing apparatus connected to color recording means, said apparatus comprising:

10       means for generating document data to be recorded by the color recording means;

    means for translating the document data into a page description language corresponding to the color recording means;

15       means for analyzing first color information from data described in the page description language; and

    means for converting the first color information into second color information as a color space of the color recording means by executing a gradation level

20 reduction process of colors not more than a predetermined level with the color recording means being able to generate an image with a light amount not more than an invisible, non-developing level.

9. The apparatus according to claim 8, wherein the  
25 first information includes red (R), green (G), and blue (B) components, and

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the second color information includes yellow (Y), magenta (M), cyan (C), and black (K) components.

10. The apparatus according to claim 8, further comprising:

5 means for determining if an object contained in the data is one of image, text, and graphics objects, and

wherein said reducing means executes the gradation level reduction process on the basis of a determination 10 result of said determining means.

11. The apparatus according to claim 10, wherein said converting means executes the gradation level reduction process for the text and graphics objects, and executes a simple dither process for the image object.

15 12. An image processing method comprising the step of: inputting data described in a color page description language;

analyzing at least luminance information from the data input to the input step;

20 converting the luminance information analyzed in the analysis step into density information;

determining if the density information is offset to a specific color;

gradating the specific color when it is determined 25 that the density information is offset to a specific color; and

reducing a gradation level of colors other than the specific color when the density information is offset to the specific color.

13. The method according to claim 12, wherein the  
5 luminance information is color information of red (R),  
green (G), and blue (B) components, and the density  
information is color information of yellow (Y), magenta  
(M), cyan (C), and black (K) components, and

when the luminance information is converted into  
10 density information in which one of yellow (Y), magenta  
(M), cyan (C), and black (K) is stronger than the  
remaining three colors, and the remaining colors are  
converted into density information of "0" or a level  
close to "0" in the conversion step, it is determined in  
15 the determination step that the density information is  
offset to a specific color.

14. The method according to claim 12, further  
comprising the step of printing out the density  
information.

20 15. The method according to claim 14, wherein the  
printing out step comprises the step of generating a  
latent image, and

the reducing step reduces the gradation so that  
the generating step generates a latent image with a  
25 light amount of invisible level or with a light amount  
not more than a non-developing level in the printing out  
step.

16. The method according to claim 15, wherein the generating step generates a latent image using dots of uniform and lowest level (nonzero) in correspondence with colors which have undergone the reducing step.

5 17. The method according to claim 14, further comprising the step of determining an object contained in the data,

wherein the reducing step reduces the gradation level on the basis of the determination result in the  
10 determining step.

18. The method according to claim 17, wherein the determining step determines if the object is one of image, text, and graphics objects,

the reducing step reduces the gradation level for  
15 the text and graphics objects, and

the gradating step executes a simple dither process for the image object.

19. A method for information processing apparatus connected to color recording means, comprising the step  
20 of:

generating document data to be recorded by the color recording means;

translating the document data into a page description language corresponding to the color  
25 recording means;

analyzing first color information from data described in the page description language; and

converting the first color information into second color information as a color space of the color recording means by executing a gradation level reduction process of colors not more than a predetermined level  
5 with the color recording means being able to generate an image with a light amount not more than an invisible, non-developing level.

20. The method according to claim 19, wherein the first information includes red (R), green (G), and blue  
10 (B) components, and

the second color information includes yellow (Y), magenta (M), cyan (C), and black (K) components.

21. The method according to claim 19, further comprising the step of determining if an object  
15 contained in the data is one of image, text, and graphics objects, and

wherein the reducing step reduces the gradation level on the basis of a determination result of the determining step.

20 22. The method according to claim 21, wherein the conversion step includes the step of executing the gradation level reduction process for the text and graphics objects, and executing a simple dither process for the image object.

25 23. A computer program product comprising a computer readable medium having computer program code, for executing an image process, said product including:

input process procedure codes for inputting data described in a color page description language;

analysis process procedure codes for analyzing at least luminance information from the data input to the  
5 input step;

conversion process procedure codes for converting the analyzed luminance information into density information;

10 determination process procedure codes for determining if the density information is offset to a specific color;

gradating process procedure codes for gradating the specific color when it is determined that the density information is offset to a specific color; and

15 gradation level reduction process procedure codes for executing a gradation level reduction process of colors other than the specific color when the density information is offset to the specific color.

24. A computer program product comprising a computer readable medium having computer program code, for executing an information process, said product including:

generation process procedure codes for generating document data to be recorded by color recording means;

25 translation process procedure codes for translating the document data into a page description language corresponding to the color recording means;

analysis process procedure codes for analyzing  
first color information from data described in the page  
description language; and

conversion process procedure codes for converting

- 5      the first color information into second color  
information as a color space of the color recording  
means by executing a gradation level reduction process  
of colors not more than a predetermined level with the  
color recording means being able to generate an image  
10     with a light amount not more than an invisible,  
non-developing level.